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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: **REGULOME ARRAYS**

(57) Abstract: Arrays, probes and methods are disclosed for the construction and interrogation of DNA arrays containing genomic functional sites, and thereby active genetic regulatory sequences. Further methods are disclosed for interrogation of such arrays in order to reveal the pattern of genetic functional and regulatory activity within any given cell(s) or tissue type(s) or associated with any particular genetic locus or combination of loci under a variety of conditions.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/39645

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12Q 1/68

US CL : 435/6

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,210,878 B1 (PINKEL et al.) 03 April 2001(03.04.2001), see entire document.	1-3
Y	US 6,180,349 B1 (GINZINGER et al) 30 January 2001 (30.01.2001) see entire document, specifically the claims.	1-3
Y	US 2001/0053519 A1 (FODOR et al) 06 March 2000 (06.03.2000) see entire document.	1-3

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:		"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/39645

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-3

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US03/39645

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-3, drawn to a method of profiling the genomic regulatory regions of a biological sample.

Group II, claim(s) 4-11, drawn to a positionally addressable polynucleotide array.

Group III, claim(s) 12-52, drawn to a method for profiling chromatin sensitivity.

The inventions listed as Groups I, II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The inventions are linked by the technical feature of the positional array. However, this feature is not special because it does not constitute an advance over the prior art. Fodor et al. (US 2001/0053519) teach and reduce to practice an array comprising all possible 10-mers (see example 2, beginning on page 12).

The special technical feature of invention group I, a method of profiling regulatory regions of a biological sample, is the use of a sample enriched for ACE's or ACE fragments and is not present in invention groups II and III. The special technical feature of invention groups III, a method for profiling chromatin sensitivity of a genomic region, is the use of a ratio measurement comprised of the signal of the test probe representing the modified cell type and the reference probe representing the unmodified cell type and is not present in invention groups I and II.